

# HOST COMPUTER, MOBILE COMMUNICATION DEVICE, PROGRAM, AND RECORDING MEDIUM

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## TECHNICAL FIELD OF TECHNOLOGY

[0001] The present invention relates to a host computer, a mobile communication apparatus, device, ~~a~~ program and a storage medium for the use ~~of~~ in an authentication system for supplying various kinds of ~~commodities~~ goods and services.

## BACKGROUND PRIOR ART

[0002] At present, the supply of various kinds of ~~commodities~~ products, including services ~~services~~, ~~via a communication line~~ communications lines, such as the supply of Internet contents and ~~the transactions at Internet Malls~~ Malls, is rapidly spreading, and the terminals used ~~for them~~ widely therein range widely from the personal computer to ~~the mobile communication apparatus and devices~~, to ~~various kinds of household electrical~~ home appliances. ~~In other words, there~~ That is, it is a possibility quite likely that in ~~future almost all future~~, ~~the majority of~~ electronic equipment, ~~service equipment~~ devices, and other equipment will be provided with a function to purchase ~~chargeable commodities~~ for-fee products ~~via the communication line~~. communications lines.

[0003] Further,

[0003] ~~Moreover~~, with ~~spread~~ increasing popularity of financial services such as ~~credit-card business~~ cards and the like, ~~billing forms~~ and there are diversified increasingly diverse billing formats, ~~and utility~~ increased convenience for the ~~consumer is enhanced~~. consumer. These financial services are ~~fused together~~ expected to be combined with ~~the mobile communication apparatus and expected devices~~, such as mobile phones, ~~to further enhance utility~~. provide even greater levels of convenience, while. On the other hand, ~~however there arises a problem that~~ however, problems such as ~~debit cards are forged or~~

~~robbed. The card forgery and theft have arisen.~~

[0004] ~~The~~ —situation described above further increases the importance of authenticating customers who have purchased products. Nevertheless, convenience will suffer if complicated operations for authentication are required every time the equipment is used.

[0004] ~~In view of the above described circumstances, the importance of authenticating customers who purchased the commodities is further increased. Nevertheless, if a complicated operation for authentication is required every time the equipment is used, utility will be hindered.~~

[0005] The present invention ~~has been made~~ was invented —in view of the above background and it is an object ~~of the present invention~~ thereof is -to provide an authentication system and a host computer, a mobile communication apparatus, device, —a program and a storage medium for the ~~authentication~~ mentioned —system capable of ~~realizing an adequate~~ achieving appropriate —authenticating processing while ~~assuring~~ guaranteeing —the maximum utility of convenience for the user user, —when various kinds of ~~commodities~~ products -and services are provided.

## DISCLOSURE OF THE INVENTION

[0006] In order to achieve the above described object, ~~the~~ a -host computer ~~according to as set forth in the present invention~~ is characterized in that it comprises:

a

first receiving means for ~~receiving the collation~~ receiving, from a service device, query —information for requesting an that requests authentication of the ~~person himself from service equipment; party in question;~~

a

second transmitting means for transmitting ~~a request information for requesting the~~ that requests -information regarding the authentication to ~~the~~ a mobile communication ~~apparatus~~ device -in response to ~~the~~ reception of ~~the collation~~ query -information by ~~the~~ said -first receiving means;

a

second storage means for storing ~~the~~ information regarding the

authentication of a plurality of persons;

a

second receiving means for receiving ~~the information regarding the authentication from the above described~~ aforementioned ~~mobile communication apparatus; device;~~

collating

a comparing means for ~~collating the~~ comparing information regarding the authentication received by ~~the said~~ second receiving means with ~~the information regarding the authentication stored in the above described~~ aforementioned ~~second storage means; and~~

a

first transmitting means for transmitting ~~the authentication information which that authenticates the person himself~~ a party in question ~~according to the collation result by collating comparison results from said comparing means to the above described~~ aforementioned ~~service equipment; device.~~

[0007] ~~Further,~~

[0007] ~~Furthermore,~~ the aforementioned information regarding the ~~above described authentication is the~~ characterized in that it is ~~ID information of the~~ a ~~user or the personal attributes of the~~ a ~~user.~~

[0008] ~~Further,~~

[0008] ~~Furthermore,~~ the ~~above described~~ aforementioned ~~first receiving means is characterized in that it receives the information regarding the services provided by the service equipment; device, and the host computer further comprises an authentication selection~~ selecting ~~means for selecting an authentication level according to the information regarding the~~ said ~~services.~~

[0009] ~~Further,~~

[0009] ~~Furthermore,~~ the ~~above described~~ aforementioned ~~authentication selection selecting means collates a compares the past service provided provision history with the services to be provided at present and selects the authentication level based on the~~ a ~~result of that collation; comparison.~~

[0010] ~~Further,~~

[0010] ~~Furthermore,~~ the ~~above described~~ aforementioned ~~authentication selection selecting means is characterized in that it selects an authentication level based on at least any one of costs~~ cost ~~of services; service, service providing~~

~~areas, provision region, -service-provided provision -frequency and a total sum of money for the services service -provided.~~

[0011] ~~Further,~~

[0011] ~~Furthermore,~~ in order to achieve the ~~above-described~~ aforementioned -object, the mobile communication ~~apparatus according to~~ device as set forth in -the present invention is characterized in that it comprises:

a

third receiving means for ~~receiving~~ receiving, from -the host computer, request information ~~for requesting the~~ that requests -information regarding the ~~authentication from the host computer;~~ authentication;

a

first storage means for storing ~~the~~ -information regarding ~~the~~ authentication; and

a

third transmitting means for transmitting ~~the~~ -information regarding ~~the~~ authentication authentication, -stored in ~~the~~ said -first storage means means, -to the ~~above-described~~ aforementioned -host computer computer, -in response to the reception of ~~the~~ -request information by the ~~above~~ -described aforementioned -third receiving means.

[0012] ~~Further, the mobile communication apparatus comprises~~

[0012] ~~Furthermore,~~ it is characterized in that it has a fourth transmitting means for transmitting ~~the~~ -information regarding ~~the~~ -authentication to the service equipment. device.

[0013] ~~Further,~~

[0013] ~~Furthermore,~~ the ~~above-described~~ aforementioned -third transmitting means is characterized in that it ~~selectively-transmits~~ transmits, to -the information regarding aforementioned host computer, -the type of information regarding authentication requested by the ~~above-described~~ aforementioned -request information ~~to the above-described host computer.~~ information.

[0014] ~~Further,~~

[0014] ~~Furthermore,~~ the function of the mobile communication ~~apparatus according to~~ device as set forth in -the present invention can be also ~~realized~~ achieved -by allowing the causing a -computer to execute a ~~program~~ program, -and such a program can be ~~mounted~~ loaded -on a ~~storage~~ recording -medium ~~capable of~~

being that can be read by the a-computer.

[0015] ~~The authentication~~

[0015] A method of authenticating by using the host computer and the mobile communication ~~apparatus according to~~ device as set forth in ~~the present invention (hereinafter, referred to as the~~ (hereinafter termed "the authentication method according to as set forth in ~~the present invention) invention")~~ is based on both of the communications between the first communication terminal incorporated in built into ~~the service equipment device and the host computer computer, and the communications between the host computer and the mobile communication apparatus device~~ (the second communication terminal). In this way, the Higher ~~reliability of the authentication can be enhanced, achieved thereby.~~ In this way, when various kinds of commodities products and services are provided, the maximum utility can be guaranteed for the customer and an adequate appropriate authentication processing can be realized, achieved while guaranteeing maximum convenience for the customer.

[0016] ~~Further,~~

[0016] Furthermore, in the authentication method ~~according to~~ as set forth in ~~the present invention, in the case of the communication between the host computer and the mobile communication apparatus device~~ (the second communication terminal), the user may be asked about the information regarding the user's for his ID information (identification information) or information regarding the personal attributes of the user and, based on the answer thereto, the user, and authentication may be performed, performed based on the response thereto.

[0017] ~~Further,~~

[0017] Furthermore, in the service ~~equipment according to~~ device as set forth in ~~the present invention, a card reader for reading the information from the storage medium where whereon the user's ID information is stored is further provided, and the service equipment device can read the ID information of the storage medium. medium, and~~ The authentication method according to as set forth in ~~the present invention is such that the first communication terminal transmits the ID information read by the card reader to the host computer computer, and the host computer notifies the mobile communication~~

apparatus device -(the second communication terminal) of the ID information based on this information and confirms the response of the mobile communication-apparatus device -(the second communication terminal)-for this, thereto. -In this way, by utilizing the conventional storage medium, utility convenience -and reliability can be enhanced, increased, while using a conventional storage medium is used.

[0018] Further,

[0018] Furthermore, in the authentication method according to as set forth in -the present invention, further and -in the case of addition, in -the communication between the host computer and the mobile communication-apparatus device (the second communication terminal), the identifiable communication information between the first communication terminal and the mobile communication-apparatus device -(the second communication terminal) is notified to the mobile communication-apparatus device, -and this information is confirmed by being collated comparison -with the information necessary for authenticating a communication history, a control transfer history and history, or -the like and, based on this confirmation result, and -the authentication is performed. In performed based on the confirmation result thereof, -this way, enables a further increase in -the reliability of authentication can be enhanced much more. authentication.

[0019] Further,

[0019] Furthermore, in the authentication method according to as set forth in -the present invention, a plurality of authentication levels levels, -and a control transfer permission condition according relating -to each authentication level level, -are stored in advance in the second storage means of the host computer or the third storage means of the service equipment device -so that, when the user desires the authentication of the person himself, that -an authentication level can be selected according to the object of the authentication authentication when the user desires the authentication of the party -In other words, question. That is, -the authentication level can be selected by collating comparing -the past service provided provision -history with the services to be provided at present.

[0020] Further,

[0020] Furthermore, in the authentication method according to as set forth in -the

present invention, when the object of the authentication is to purchase ~~commodities, products, -the commodities products -are collated compared~~ with the ~~amount of money price -for the commodities products -and the past commodity purchasing history product purchase history, -~~ and the authentication level is ~~selected, selected~~ based on the result of the ~~collation. In this way, utility comparison. Increased convenience -can be enhanced. achieved thereby.~~

[0021] ~~Further,~~

[0021] ~~Furthermore,~~ in the present invention, the host computer may automatically ~~analyze a tendency of commodity trends in product -purchasing of by -the user and collate compare -the analyzing analysis -result with the commodities. said products.~~

[0022] ~~Further,~~

[0022] ~~Furthermore,~~ in the authentication method ~~according to as set forth in -the present invention, when the object of the authentication is to purchase -the commodities, a product, -the authentication level can be selected based on at least any one of cost of services, service, -service providing areas, provision region, -service provided provision -frequency and a total sum of money for the services service -provided. In this way, utility Increased convenience -can be enhanced. achieved thereby.~~

[0023] ~~Further,~~

[0023] ~~Furthermore,~~ in the present invention, the service ~~equipment is the device may be -equipment capable of providing the commodities a product -to the user and may provide the commodities by product after -confirming a billing processing process -for the user after the authentication of the user has been performed. person in question.~~

[0024] ~~Further,~~

[0024] ~~Furthermore,~~ in the authentication method ~~according to set forth in -the present invention, the first communication terminal and the host computer are connected by the a -mobile communication line, and the host computer and the mobile communication apparatus device -(the second communication terminal) are connected by the mobile communication line. In this way, the degree of freedom of the place and in -the like for installing installation location, etc. of -the first communication terminal is enhanced. increased~~

thereby.

[0025] ~~Further,~~

[0025] ~~Furthermore,~~ in the authentication method ~~according to~~ set forth in -the present invention, the first communication terminal and the host computer are connected by a fixed line, and the host computer and the mobile communication ~~apparatus~~ device -(the second communication terminal) are connected by ~~the~~ a -mobile communication line. ~~In this way, the reliability of~~ the communication reliability of the first communication terminal is ~~enhanced.~~ increased thereby.

[0026] ~~Further,~~

[0026] ~~Furthermore,~~ in the authentication method ~~according to~~ as set forth in -the present invention, when a line condition is not good between the mobile communication ~~apparatus~~ device -(the second communication terminal) and the host computer, ~~the communication which~~ that -should be performed between the mobile communication ~~apparatus~~ device -(the second communication terminal) and the host computer ~~can be~~ is -executed between the first communication terminal and the host computer. ~~In this way, a line trouble problems~~ can be handled easily ~~handled.~~ thereby.

[0027] ~~The present specification contains the contents described~~ descriptions -in the specification and/or the drawings of Japanese Patent Application No. 2000-193957 2000-193957, -which is ~~a base of the~~ foundation for the priority of the present patent ~~application.~~ application, are incorporated [by reference] into the present specification.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0028] FIG. 1 is a block diagram ~~showing a constitution~~ illustrating the structure -of a first embodiment of an authentication system ~~according to~~ as set forth in -the present invention;

[0029] FIG. 2 is a block diagram ~~showing illustrating~~ the constitution structure -of a second embodiment of ~~the~~ an -authentication system ~~according to~~ as set forth in -the present invention;

[0030] FIG. 3 is a block diagram ~~showing illustrating~~ the constitution structure -of a third embodiment of ~~the~~ an -authentication system ~~according to~~ as set forth in



the present invention;

[0031] FIG. 4 is a block diagram ~~showing illustrating~~ the constitution structure of a fourth embodiment of ~~the an~~ an authentication system according to as set forth in the present invention;

[0032] FIG. 5 is a ~~view showing diagram illustrating~~ modified embodiments examples of ~~the constitutions structures~~ of the first and second communication terminals in the authentication system of FIG. 3;

[0033] FIG. 6 is a ~~flowchart showing a processing flow of~~ chart illustrating ~~the whole overall flow in an~~ an authentication system according to as set forth in the present invention; and

[0034] FIG. 7 is a ~~flowchart showing flow chart illustrating~~ the flow of the correction adjustment of the authentication level in ~~the an~~ an authentication system according to as set forth in the present invention.

#### BEST MODE FOR CARRYING OUT THE INVENTION

[0035] Next, ~~the embodiments of the authentication system systems~~ constituted by using a host computer, a mobile communication ~~apparatus, device,~~ a program program, and a ~~storage recording~~ medium according to as set forth in the present invention ~~(hereinafter, referred to as (hereinafter termed "the authentication system according to as set forth in the present invention) invention")~~ will be described based on the drawings.

[0036] FIG. 1 ~~shows illustrates~~ a constitution structure of a first embodiment of ~~the an~~ an authentication system according to as set forth in the present invention, and ~~shows the illustrating an~~ an authentication system having a card reader system CRS for reading a storage medium CC for storing ~~the user~~ ID information of users of information, such as a credit card and the like. The ~~card. A~~ card reader system CRS (service equipment) CR is connected to ~~a the~~ the card reader-CR system CRS (service device), and the first communication terminal PD1 ~~(here (in this case, -for mobile communication) of a built-in type (embedding (embedded -type) is incorporated into the card reader system CRS. Through the first communication terminal PD1, CRS, and -the user (customer) can communicate with a host computer HC of an authentication management control -company BS. BS through -The first communication terminal PD1. The authentication-management control -company BS is, for~~

example, a communication service company company, and performs the authentication management control for a plurality of commodity providing product supplier companies SP1 to SP3 (three (and while three companies are shown in the drawing, but its the [actual] number is random discretionary)) according to commodity product purchasing situations statuses in the card reader system CRS (service equipment device). The commodity providing product supplier companies SP1 to SP3 include not only the service providing companies which that provide the services such as credit services, cash services services, and the like like, but also the commodity providing product supplier companies which that provide various commodities products, as shown in Table 1 1, via the Internet and, further, additionally, include financial institutions, security securities companies, real estate companies, mass communication-related companies such as satellite broadcasting, CATV, cable television, newspapers, radio broadcasting, companies relating to mass communication such as publishing and the like. like, and so forth.

[0037] Here, for convenience sake, processing units devices of the commodity providing product supplier companies SP1 to SP3 are also designated as SP1 to SP3. These processing units devices SP1 to SP3 are connected to a host computer HC of the authentication management control company BS via a public communication line or dedicated line. Table 1. Examples of provided commodities.

TABLE 1: Examples of Provided Commodities Products

Provided Products	
Internet Contents	<u>Information providing services for commodity information, company information</u> <u>Product information, corporate information</u> and other information <u>provision services</u>
	Music distribution services
	Book distribution services
	Game distribution services
	Services for providing image information such as <u>photo</u> , <u>painting photographs</u> , <u>paintings</u> and the like
Internet mall, <u>shop</u> <u>shopping channel</u>	Various kinds of <u>commodities products</u> , <u>money voucher</u> <u>monetary notes</u>

Finance	Internet banking
Securities	Brokerage of securities <u>dealing trading</u>
Real estate	Brokerage of real estate <u>dealing trading</u>
Mass Communication	Satellite broadcasting, cable television
	Newspapers, publication
	Radio

[0038] The host computer HC comprises: ~~the~~ a -first receiving means for receiving the ~~collation~~ query -information for requesting an authentication of the person himself in question -from the service ~~equipment~~; ~~the~~ device; a -second transmitting means for transmitting ~~the request information for requesting the information regarding the authentication to the~~ a -mobile communication apparatus device -PD2 (the second communication ~~terminal~~, here terminal; in this case, -a portable telephone) in response to the reception of the ~~collation query~~ query -information by the first receiving means; ~~the~~ a -second storage means MEM-2 MEM2 -for storing the information regarding the authentication of a plurality of persons; ~~the~~ a -second receiving means for receiving ~~the information regarding the authentication from the mobile communication apparatus device~~ - (the second communication terminal); the ~~collation comparison~~ -means for ~~collating the~~ comparing -information regarding the authentication received by the second receiving means with ~~the information regarding the authentication stored in the second storage means MEM-2; MEM2;~~ -and ~~the~~ a -first transmitting means for transmitting ~~the authentication information for authenticating the person himself in question to the service equipment device~~ -according to the ~~collation result of comparison~~ by the ~~collation comparison~~ -means.

[0039] ~~Further,~~

[0039] Furthermore, the mobile communication ~~apparatus device~~ - (the second communication terminal) PD2 comprises: ~~the~~ a -third receiving means for receiving the request information for requesting ~~the information regarding the authentication from the host computer HC;~~ ~~the~~ a -first storage means MEM-1 MEM1 -for storing ~~the information regarding the authentication;~~ and ~~the~~ a third transmitting means for transmitting ~~the information regarding the authentication stored in the first storage means MEM-1 MEM1~~ -to the host computer HC in response to the reception of ~~the request information by the~~

third receiving means.

~~[0040] Next, the~~

~~[0040] An authentication method using the a -host computer HC and the a -mobile communication apparatus device -(the second communication terminal) PD2 will be ~~described.~~ described next.~~

~~[0041] First, from query information for requesting the authentication of the party in question is transmitted from a first communication terminal PD1 of the service equipment device -(card reader system) CRS to the a -host computer HC, the collation information for requesting the authentication of the person himself is transmitted. HC.~~

~~[0042] When the host computer HC receives the collation information query information, -for requesting the authentication of the person himself party in question, -from the first communication terminal PD1 through the a -first receiving means, it [this host computer HC] -transmits the request information information, -for requesting the information regarding the authentication authentication, -to the a -mobile communication apparatus -(the device (a second communication terminal) PD2 through the a -second transmitting means in response to the reception of the collation query -information by the first transmitting means.~~

~~[0043] When the mobile communication apparatus device -(the second communication terminal) PD2 receives the request information information, for requesting the information regarding the authentication from the host computer HC HC, -through the a -third receiving means, it [the mobile communication device (the second communication terminal) PD2] -transmits the information regarding the authentication authentication, which is -stored in the first storage means MEM1 MEM1, -to the host computer HC through the third transmitting means in response to the reception of the request information by the third receiving means.~~

~~[0044] When the host computer HC receives the information regarding the authentication from the mobile communication apparatus device -(the second communication terminal) PD2 through the second receiving means, it collates [the host computer HC] compares -the information regarding the authentication received by the second receiving means with the information regarding the authentication stored in the second storage means MEM2 by~~

~~using through the collation use of comparing means, and transmits the authentication information for authenticating the person himself party in question to the first communication terminal PD1 of the service equipment device (card reader system) CRS CRS, through the first transmitting means means, according to the collation query result.~~

[0045] ~~On~~

[0045] ~~While conventionally a signature by the occasion of user has been required when executing an authentication procedure as to whether or not the use of a storage medium CC is justified or not, a signature by the user is required heretofore. legal, In the present embodiment, in order to reduce the burden load on the part of the user and to speed up the authentication processing, when the usage use of the CC storage medium is communicated as the collation query information is communicated to the host computer HC from the card reader system CRS, the host computer HC of the authentication management control company BS communicates with the second communication terminal PD2 (mobile communication apparatus, device, portable telephone) owned by the user and requests the information regarding the authentication. authentication (sends request information).~~

[0046] The second communication terminal PD2 is provided with the storage means MEM1 for storing the user ID information of users, information, and, in response to the request from the host computer HC, the ~~ID information of the user (the ID information (information regarding the authentication))~~ is read from the first storage means MEM1 and ~~transferred sent back~~ to the host computer HC. When the host computer HC receives the user ID information of the user from PD2, it ~~collates [the host computer HC] compares~~ the ID information with the information regarding the authentication stored in the second storage means MEM2 ~~by using through the collation use of comparing means.~~ If the use of the storage medium CC is ~~legitimate, legal,~~ the authentication of the ~~person himself party in question~~ is established and, in this way, ~~and the reliability of the authentication is enhanced. can be increased thereby.~~

[0047] ~~Alternatively,~~

[0047] Conversely, the host computer HC accumulates in advance, in the second storing means MEM2, information regarding the personal attributes of the

~~user in the second storing means MEM2 in advance~~ user, and asks a question regarding the personal attributes of the user to the second communication terminal PD2. The host computer HC can confirm that the use of the storage medium CC by the user is legal When the user operates the second communication terminal PD2 ~~and answers~~ to answer the question to the host computer HC and the answer (information regarding the personal attributes) is legitimate, ~~the host computer HC can confirm that the use of the storage medium CC by the user is legitimate. Further, correct. Furthermore,~~ the second communication terminal PD2 ~~can selectively also~~ transmit the information selectively, to the host computer HC, regarding the type of the authentication requested by the request information from the host computer HC ~~to the host computer HC.~~

~~[0048] For the~~

~~[0048] To a user who is skilled in operating the second communication terminal (portable telephone) PD2,~~ the an ~~authentication processing by process~~ using the second communication terminal PD2 is extremely simple ~~in contrast when compared~~ to the entry of a sign. Further, the reliability inputting of the authentication ~~can be remarkably enhanced by signature. Furthermore,~~ the confirmation of the second communication terminal PD2 in addition to the ID information of the storage medium ~~CC. CC can increase the reliability of the authentication remarkably.~~

[0049] When the authentication of the ~~person himself~~ party in question is completed in the host computer HC, the authentication information is transmitted to the first communication terminal PD1 from the host computer HC. The notification of this authentication is ~~executed~~ performed by transmitting a ~~predetermined specific~~ authentication code and or the like.

~~[0050] Further,~~

~~[0050] Furthermore,~~ the mobile communication ~~apparatus~~ device (the second communication terminal) PD2 comprises ~~the a~~ fourth transmitting means for transmitting the information regarding the authentication to the service equipment ~~and, by adding device and the convenience and reliability of authentication can be increased even more through the addition, to the conditions of~~ the authentication, of communication between the first communication terminal PD1 and the second communication terminal ~~PD2 to~~

~~the conditions of the authentication, the utility and reliability of authentication can be enhanced much more. PD2. For example, the user ID information of the user and other information are transmitted from the second communication terminal PD2 to the first communication terminal PD1, and the first communication terminal PD1 transmits these pieces of information to the host computer HC, this information, which was sent from the second communication terminal PD2 PD2, together with the ID information of the storage medium CC to the host computer HC. CC. The host computer HC is provided with the second storage means MEM2, and the where this second storage means MEM2 stores a corresponding relation correspondence relationship (any information regarding the communication history or the control transfer history of each the individual user who uses using the card reader system CRS) between the user ID information of the user and the second communication terminal PD2 of the user, and, based on this corresponding relation, correspondence relationship, the host computer HC transmits the ID information of the above-described aforementioned storage medium CC and the information regarding the corresponding relation correspondence relationship to the second communication terminal PD2. The second communication terminal PD2 collates these pieces of compares this information transmitted from the host computer HC with the communication history, the control transfer history and were the like stored stored, in the first storage portion MEM1 of the second communication terminal PD2 PD2, and, when these pieces of information match one another, if there is a match, a reply to that effect is given returned to the host computer HC.~~

[0051] As described above, in the present embodiments, ~~though various kinds types~~ of authentication procedures can be used, by determining a reference for selecting the authentication procedure according to the ~~object purpose~~ of the authentication, ~~the optimum utility to achieve optimal convenience and reliability can be realized. reliability.~~ For example, when the ~~object purpose~~ of the authentication is to purchase ~~the commodities, a product,~~ the authentication level can be set by the price thereof as shown in Table 2, and the authentication procedure for this can be set as shown by Table 3.

TABLE 2: Examples of the authentication levels

Authentication Level 1
<del>In case: The price of the commodity product is equal to or less than a first-predetermined specific value. The first predetermined-specific value is, for example, ¥5,000.</del>
Authentication Level 2
<del>In case: The price of the commodity product is more than the first-predetermined-specific value and is equal to or less than a second-predetermined-specific value. The second predetermined-specific value is, for example, ¥10,000.</del>
Authentication Level 3
<del>In case: The price of the commodity product is more than the second-predetermined-specific value.</del>

TABLE 3: Examples of control transfer permissions

Authentication Level 1
<del>It is unconditionally authenticated, provided that an ex post facto confirmation should be made to. However, confirmation after the fact is made regarding the second communication terminal.</del>
Authentication Level 2
<del>Authentication control company BS makes a prior confirmation about the commodity purchase to regarding the second communication terminal PD2 about product purchases.</del>
Authentication Level 3
<del>Authentication management control company BS makes a prior confirmation about the commodity purchase to regarding the first communication terminal PD1 and the second communication terminal PD2 about product purchases.</del>

[0052] ~~In other words,~~[0052] ~~That is,~~ -when the price of the commodity product -is equal to or less than the first-predetermined specific -value,-~~the there is unconditional authentication as~~ -authentication level-1 is adapted and it is unconditionally authenticated. 1. -However, a-prior-confirmation after the fact is ~~executed to~~ made regarding -the second communication terminal PD2. When the price of the commodity product -is more than the first-predetermined specific -value and is equal to or less than the second-predetermined specific value, the authentication level 2 is adopted, and the authentication management control -company BS makes a prior confirmation about the purchase of the commodity to product regarding -the second communication terminal-PD2. PD2, as authentication level 2. -When the price of the commodity product -is more than the second-predetermined specific -value, the authentication level 3 is adopted, and the authentication management control company BS makes a prior confirmation about the purchase of the commodity to product regarding -the first communication terminal PD1 and the second



communication terminal ~~PD2~~, PD2, as authentication level 3.

[0053] The first receiving means of the host computer HC is provided with authentication ~~selection~~ selecting means for receiving information regarding the services provided from the service ~~equipment~~ device and selecting the authentication level according to ~~the~~ this information regarding the services, ~~so that~~ enabling the authentication procedure ~~can~~ to be changed according to the authentication level. ~~In other words, when~~ That is, the host computer HC ~~which~~ stores the authentication levels and the authentication ~~procedure~~ procedures in the second storage means ~~MEM2~~ receives the information ~~regarding the collation~~ MEM2, and ~~when query~~ information for requesting the authentication of the ~~person himself~~ party in question and the information regarding the services are received from the first communication terminal PD1 through the first receiving means, the host computer HC selects the ~~collation levels~~ query level according to the information regarding the services ~~with reference to~~ services, referencing the second storage means ~~MEM2 by using~~ MEM2, through the use of the authentication selection means. After that, in order to perform the authentication procedure based on the authentication level, ~~the host computer HC either transmits the request~~ information for requesting the information regarding the authentication is sent to the mobile communication ~~apparatus~~ device (the second communication terminal) through the second transmitting means for ~~the purpose of a prior~~ confirmation confirmation, ~~or performs an ex post facto confirmation, a~~ confirmation is performed after the fact. In the case ~~that~~ of the prior ~~confirmation is performed, the host computer HC transmits the~~ confirmation, authentication information to ~~perform the authentication of~~ for authenticating the ~~person himself~~ party in question according to the ~~collation~~ comparison result is sent to the first communication terminal PD1 of the service ~~equipment~~ device (card reader system) CRS through the first transmitting means.

[0054] When the authentication by the host computer HC is not ~~necessary~~ similarly to the ~~processing of~~ necessary, such as in the process for authentication level 1, storing the authentication levels and the authentication procedure ~~are stored in~~ the third storage means MEM3 of the first communication terminal ~~PD1~~, so that PD1 in advance, enables the first communication terminal PD1, that is,

the card reader system CRS (service-equipment) can device), to provide the commodity product to the user without awaiting waiting for the reception of an authentication code from the host computer HC HC, if it is confirmed that the price of the commodity product is equal to or less than the first predetermined specific value. However, an ex post facto a confirmation should be after the fact is a made to regarding the second communication terminal and, after the facto, fact, the commodity providing product supplying company SP should be is notified to that effect via the host computer HC.

[0055] FIG. 2 shows illustrates a second embodiment which uses embodiment, wherein the first communication terminal T1 of a fixed line is used in place of the first communication terminal PD1 (for mobile communication) in of the first embodiment. The first communication terminal T1 is incorporated built into the card reader system CRS (service-equipment) device). The Other constitutive constituent components are same as identical to those of the first embodiment and the description embodiment, so descriptions thereof will be therefore omitted. By the above described constitution, aforementioned structure enables the application of the authentication system of the present invention, even if in cases where the line condition status of the mobile communication line in the installed location of installation of the service equipment device is not good, the authentication system of the present invention can be adapted. good.

[0056] When the first communication terminal T1 of the fixed line is used, the authentication procedure by the communication between the second communication terminal PD2 and the host computer HC can be also executed by the communication between the first communication terminal T1 and the host computer HC. This is effective in the case that when the line status of the second communication terminal is in a bad condition. bad.

[0057] FIG. 3 shows illustrates a third embodiment for the authentication in the a television set TV (service-equipment) which device) that can be connected connect to the Internet. The A first communication terminal PD1 (here (in this case, for the mobile communication) of the a built-in type (embedded type) is incorporated built into the television set TV, which where the television TV can communicate with the authentication management control company BS via the first communication terminal PD1.

[0058] The owner or the manager of the service-equipment device -TV can make an access to a variety of ~~commodity providing product supplier~~ companies by a predetermined specific authentication procedure by using the first communication terminal PD1. By using a dynamic image PD1, and the use of the video display function or a distributing function functions and distribution functions of the television set TV, a limit to tradable commodities is reduced and economic activities become reduces limitations on the products that can be traded, remarkably brisk, invigorating economic activities.

[0059] Further,

[0059] Furthermore, if the use of television set TV can be used by many and a large number of unspecified customers, customers is enabled, a wider broad range of customers' needs can be tackled, and handled, thus invigorating economic activities can become remarkably brisk, even further. However, in this case, it is necessary to perform an adequate billing appropriately for the customer customers who uses used the television set TV (service-equipment), device, and there is such a risk concern that the authentication and the billing procedure for each customer of the individual customers may become complicated.

[0060] Further,

[0060] Additionally, in the present embodiment, when the billing charges for the purchase of the commodities is owed products are to be borne by each customer, individual customers, a "control transfer mode" which transfers the can be set up wherein control regarding the billing charges is transferred to the customer's side can be set up. side. When the "control transfer mode" is set up, a plurality of customers settle their perform payment processes after the completion of authentication of the person himself, so that they have been authenticated, making it is impossible for the owner or the manager of the service-equipment device to be charged with the fee. charged.

[0061] The customer (not shown) calls up the a first communication terminal PD1 (used by a plurality of customers) from the a second communication terminal PD2 (mobile (a mobile communication apparatus, here device, in this case, a portable telephone) which is owned by himself, the customer, and inputs a predetermined specific code (number, reference numeral and (a number, a code, or the like), so that the service-equipment device -TV can be used for

the purpose of the billing ~~for~~ of the customer. ~~In this way, if~~ Guaranteeing the customer ~~is guaranteed to be a legitimate customer by legal through~~ the authentication of the second communication terminal PD2, a PD2 in this way enables ~~customer authentication is possible such that the second communication terminal PD2 itself is taken as the ID information, and an adequate enabling appropriate billing can to~~ be performed.

[0062] ~~Further, the operation of the~~ Additionally, ~~customer authentication is operations are~~ relatively simple and does simple, ~~not damage utility. compromising convenience.~~

[0063] ~~On~~

[0062] ~~At this occasion, the time,~~ information regarding the billing is transmitted sent from the first communication terminal PD1 to the host computer HC of the authentication ~~management control~~ company BS. Accordingly, regardless of ~~whether or not~~ the "control transfer mode" ~~being utilized or not, the is used,~~ information regarding the billing may be transmitted together with the information regarding the authentication, and it is not necessary to change the ~~transmission form of the transmission for~~ billing information on the service equipment device ~~TV.~~

[0064] ~~When~~

[0063] ~~When~~ a predetermined specific ~~"condition" is satisfied, the authentication management control~~ company BS permits the supply of the commodities a product ~~by confirming the customer billing processing for the process~~ customer. The authentication level levels and condition conditions are the same as those of the above embodiment described preferred embodiment above.

[0065] ~~Although~~

[0064] ~~Although~~ the authentication levels ~~of in~~ Table 2 are set up only by the prices of the commodities, as shown in Table 4, it product alone, they can be corrected adjusted ~~based on the commodity purchase history of products purchased~~ from the second communication terminal PD2. PD2, as shown in Table 4.

TABLE 4: Example of ~~corrections~~ adjustments of authentication levels.

Authentication Level not modified
-----------------------------------

<p>(1) <del>In case: The commodity purchase history</del> When the product purchase history of the second communication terminal PD2 recorded <del>in at</del> the authentication management control company BS is less than a <del>predetermined specific</del> value. The <del>predetermined specific</del> value is set by comprehensively judging the number of purchase times and the purchase amount of money. (2) ) <del>In case: The commodity purchase history</del> When the product purchase history of the second communication terminal PD2 recorded in the first communication terminal PD1 is less than a <del>predetermined specific</del> value. The <del>Predetermined value</del> As with (1), the <del>specific value</del> is set by comprehensively determining the number of purchases, <del>similarly to (1) and the amount of purchases.</del></p>
Authentication Level lowered by 1.
<p>(1) <del>In case: The commodity purchase history</del> When the product purchase history of the second community terminal PD2 recorded in the authentication management control company BS is more than a <del>predetermined specific</del> value. (2) <del>In case: The commodity purchase history</del> When the product purchase history of the second communication terminal PD2 recorded in the first communication terminal PD1 is more than a <del>predetermined specific</del> value.</p>

[0066] ~~In~~[0065]           In the estimation evaluation of the purchase history in Table 4, on condition that the purchase amount of money is adequately used, a comprehensive estimation is made, if for example, assuming that the purchase amount of money Yen.100,000 of ¥100,000 is taken as a predetermined the specific value of the purchase history as the condition for legal use, a comprehensive evaluation is made, such as calculating 10 purchases as being equivalent to ¥10,000 of purchases, and adding this to the purchase history, even if the purchase amount of money is less than Yen.100,000, ~~ten times of the purchases are changed into the purchase of Yen.10,000 and added to the purchase history.~~ ¥100,000.

[0067] Further,

[0066] Furthermore, the authentication level ~~can may~~ be selected by ~~collating comparing~~ the past service providing provision history with the services to be provided at ~~present present,~~ or the authentication level ~~can may~~ be selected based on at least anyone of the cost of services, service providing areas, provision area, service provided provision frequency and the total sum of money for the services provided.

[0068] As

[0067] As described above, ~~by adequately appropriately~~ simplifying the authentication procedure according to the authentication level, level can remarkably increase the utility convenience of the service equipment device regarding the commodity provision ~~can be remarkably enhanced.~~ product

provision.

[0069] It is also possible to use

[0068] Note that other parameters, for example, the geographic area of the first communication terminal, the first communication terminal itself, the kind type of the ~~commodity and product, or the like~~ like, may also be used ~~for setting and correcting~~ adjusting the authentication levels.

[0070] Further,

[0069] Moreover, in the host computer HC, ~~it is also possible to automatically analyze the tendency of the purchased commodities~~ automatic analysis ~~of product purchasing trends by the user may be used~~ to lower the authentication level for ~~the a purchase of the commodities complying with a product conforming to the analyzed result~~ analysis result, ~~and to~~ raise ~~(to be strict with) (increase the strictness of)~~ the authentication level ~~regarding for the purchase of the commodities different a product deviating from the past tendency.~~ trends.

[0071] FIG.

[0070] FIG. 4 ~~shows illustrates~~ a fourth embodiment ~~which uses the wherein a~~ first communication terminal T1 of the a ~~fixed line is used~~ in place of the first communication terminal PD1 (for the mobile communication) in the third embodiment. The ~~Other constitutive constituent~~ components are ~~same as identical to~~ those of the third ~~embodiment and description~~ embodiment, so descriptions thereof will be ~~therefore omitted.~~ ~~By the above described constitution, aforementioned structure enables the application of the billing system of the present invention,~~ even if the line condition status of the mobile communication line in the location of installation of the service equipment TV ~~installed device~~ is not good, the authentication system of the present invention can be adapted. Such good. Note that ~~a constitution structure~~ can be ~~also adapted that used wherein~~ the service equipment device TV is ~~taken used~~ as the first communication terminal T1 and a telephone set TV [sic] (T1) of the with a fixed line is used.

[0072] FIG.

[0071] FIG. 5 ~~shows illustrates~~ a modified ~~embodiment which uses~~ example of the structure of a first communication terminal (for the mobile communication) PD1 and ~~the a~~ second mobile communication terminal (mobile

communication ~~apparatus, device,~~ -portable telephone) PD2 in ~~a the~~ -third embodiment. Label tags TG1, TG2 are ~~incorporated~~ built -into the first and second mobile communication terminals PD1, ~~PD2 respectively PD2,~~ respectively, ~~and these label tags~~ send ~~intrinsic~~ unique -signals of the first and second communication terminals PD1, PD2. The signals of label tags TG1, TG2 are received respectively by the antennas of the first and second communication terminals PD1, PD2 and, when both are detected by each other, the service ~~equipment~~ device -TV transmits ~~the~~ -billing information as ~~the~~ -billing for the second communication terminal PD2 to the authentication management control -company BS. ~~In other words, That is,~~ -the first and second communication terminals PD1, PD2 operate as non-contact sensors and detect ~~the~~ electrical indexes ~~emitted~~ issued -by label tags TG1, TG2. ~~By PD1, The automatic detection of PD1 and PD2 being automatically detected~~ by each other in this way, ~~it is not necessary to perform a complicated operation way eliminates the necessity of performing cumbersome operations~~ such as calling ~~up~~ -the first communication terminal PD1 from the second communication terminal PD2 and inputting ~~the~~ a -code.

[0073] ~~Needless to mention,~~

[0072] ~~Obviously,~~ radio communications by BLUETOOTH standards can be ~~adopted~~ used -in place of the communications by label tags. ~~Further, Additionally,~~ -the authentication ~~management control~~ -company BS may be the same as the ~~commodity providing company and, in this case, product supplier company,~~ simplifying -the authentication ~~system can be simplified.~~ system.

[0074] ~~FIG.~~

[0073] ~~FIG. 6 is a flowchart showing illustrating~~ -one example of the overall flow of the ~~whole~~ -authentication system based on the control transfer request. Here, the ~~correction~~ adjustment -of the authentication level shown in Table 4 is not performed, and ~~a processing which adopts process is shown wherein~~ -only the conditions of Table ~~2, 2 and~~ -Table 3 ~~is shown.~~ are used.

[0075] ~~First, by the~~

[0074] ~~First, an operation that wherein~~ -the second communication terminal PD2 calls ~~up~~ -the first communication terminal ~~PD1 and PD1, or~~ -the like, ~~it is determined and determines~~ -whether or not a request for the control transfer ~~is has been~~ -made ~~or not (step S41) and, when the request is not made, S41), and~~

the process is ~~finished~~, terminated if no request has been made.

[0076] When the

[0075] If a request for the control transfer is has been -made, the request contents from the second communication terminal PD2, that is, details, namely, -the commodities desired product -to be purchased, the prices thereof thereof, -and the like, and the information regarding the authentication such as the ID information regarding the billing of the customer customer, -and the like like, are transmitted from the second communication terminal PD2 to the authentication-management control -company BS (step S42). In the first communication terminal, a determination is made, from the product prices and based on Table 2 and Table 3, it is determined from the commodity prices whether or not the prices are of the a -low level which does not require requiring -an approval from the authentication-management control -company BS. BS, where -If the approval is not required, the commodities are immediately product is -provided immediately (step S45). If the approval is required, the commodities are product is -provided (step S45) when the approval from the authentication-management control -company BS is granted (step S44). When S44), and if -the approval is not granted, a declined notification to the effect that the approval is not granted is notified provided to the second communication terminal PD2 (step S46).

[0077] After

[0076] After the commodities are provided, it product -is determined whether an ex post facto confirmation provided, a determination -is required or not (step S47) made -based on the Authentication level 1 in Table 3. When 3 as to whether or not a confirmation is required after -the ex post facto fact (Step S47), and if confirmation is required, required after -the fact, information regarding the purchase of the commodities product, -and the like like, -is transmitted sent from the authentication-management control -company BS to the second communication terminal PD2 and PD2, or -the like (step S48).

[0078] FIG.

[0077] FIG. 7 is a flowchart showing illustrating -the process flow of the processing of the in an -authentication system which that -performs the correction adjustment -of the authentication levels shown in Table 4.

[0079] First, by the



[0078] ~~First, an operation that wherein~~ the second communication terminal PD2 calls up the first communication terminal ~~PD1 and PD1, or~~ the like, ~~it is determined to determine~~ whether or not a request for the control transfer is ~~has been~~ made or not (step S51). ~~When the request is not made, S51), and the process is finished.~~ terminated if no request has been made.

[0080] ~~When the~~

[0079] ~~If a request for the control transfer is~~ has been made, a tentative judgment ~~evaluation~~ of the authentication level is made ~~from~~ based on the prices of the ~~commodities desired product~~ to be purchased and based on Table 2 (step S52). ~~Here, Here~~ the request contents ~~from the second communication terminal PD2, that is, details, namely,~~ the ~~commodities desired product~~ to be purchased, the ~~prices price~~ thereof, and the like, and information regarding the authentication such as the ID information regarding the billing of the ~~customer customer,~~ and the like like, are transmitted from the second communication terminal PD2 to the authentication ~~management control~~ company BS (step S53). 53). Next, in the first communication terminal, ~~it a determination~~ is determined from made based on the ~~commodity prices product price as to~~ whether or not the ~~commodities are product is~~ of the a low level ~~which that~~ does not require the approval of the authentication ~~management control~~ company BS. BS, and If the approval is not required, the ~~commodities are immediately product is~~ provided immediately (step S58). ~~When If~~ the approval is required, it is determined whether the ~~correction adjustment~~ of the authentication level is required or not based on Table 4 in the authentication ~~management control~~ company BS. ~~When the correction BS, and if adjustment~~ is required, the process returns to step S54 after the ~~correction adjustment~~ of the authentication level and, ~~when the correction level. If adjustment~~ is not required or ~~becomes~~ has become unnecessary because of the ~~correction adjustment~~ of the authentication level, the process advances to the ~~judgment decision~~ (step S57) as to whether the authentication is approved or not in the authentication ~~management control~~ company BS.

[0081] ~~When~~

[0080] If the approval is granted in step S57, the ~~commodities are product is~~ provided (step S58) and, ~~when S58), but if~~ the approval is not granted, the

second communication terminal PD2 is notified ~~of that~~ the approval ~~rejected~~ is declined (step S59).

[0082] ~~After the commodities are~~

[0081] After a product is provided, as in the with authentication level<sup>3</sup>, it Level 3, a determination is determined made as to whether an ex post facto or not a confirmation is required or not (step S60). When after the ex post facto fact (Step S60), and if confirmation is required, required after the fact, information regarding the purchase of the commodities and product, or the like like, is transmitted sent from the authentication management control company BS to the second communication terminal PD2 (step S61).

[0083] ~~Needless to say,~~

[0082] Obviously, the control transfer regarding the for billing can be adapted applied to any service equipment device using any communication terminals terminal other than the television set TV.

[0084] ~~The~~

[0083] The mobile communication apparatus device of the present invention is also realized embodied by a program that allows causes a computer to function as the present mobile communication apparatus device. This program may be housed in stored on a storage recording medium capable of being read by a computer.

[0085] ~~The storage~~

[0084] The recording medium which that stores this program may be the first storage means MEM1 itself itself, shown in FIG. 1, or CD-ROM and a CD-ROM, or the like, wherein a program reading unit such as the CD-ROM drive and drive, or the like like, is provided as an the external storage unit is provided, and unit, where the CD-ROM can be read by being inserted into it, thereby through the insertion of the recording medium.

[0086] ~~Further,~~

[0085] Furthermore, the above described storage aforementioned recording medium may be a magnetic tape, a cassette tape, a floppy disc, a hard disc, MO/MD/DVD and MO/MD/DVD, or the like like, or a semiconductor memory.

## INDUSTRIAL APPLICABILITY

[0087] According to the [0086] \_\_\_\_\_ The present invention, an authentication system, a host computer, a mobile communication apparatus, a program and a storage medium for invention enables the use provision of the an authentication system are provided capable of that can provide an appropriate authentication process while guaranteeing the optimum utility maximum convenience for the customer and realizing an adequate authentication processing customer, when various kinds of commodities products and services are provided, as well as a host computer, mobile communication device, program and recording medium for use in said authentication system.

HOST COMPUTER, MOBILE COMMUNICATION DEVICE,

# PROGRAM, AND RECORDING MEDIUM

## ABSTRACT

The object of the present invention is to ~~realize the~~ provide an -authentication system capable of achieving suitable authentication processing while guaranteeing the ~~optimum utility~~ maximum convenience -for the customer and realizing an ~~adequate authentication processing.~~ The customer.

A -first communication terminal PD1 is ~~incorporated~~ built into the a television-set TV, which TV that -can be connected to the ~~Internet~~ Internet, -and can ~~communicate~~ communications -with the an -authentication-management control company BS are possible via the first communication terminal PD1. The authentication-management control -company BS is, for example, a ~~communication service company~~ telecommunications company, -and performs an authentication control for a plurality of ~~commodity providing product supplier~~ -companies SP1 to SP3 according to the ~~commodity product~~ -purchase-situation in status on -the television-set TV. ~~Further,~~ Furthermore, -the present invention simplifies the appropriate procedures ~~properly~~ by setting the authentication levels for the authentication control.